D. Long Term Care and Rehabilitation, Chaired by Dr Alex Chan

Preferred Place of Care and Death among Elderly Patients Receiving Palliative Care

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Abstract

One of the main goals of palliative care is to facilitate patients to receive care and die in their preferred place. This is the sub-group analysis of a cross-sectional study performed in our unit from 1st February 2012 to 30th June 2012. Patients' preferred place of care (PPC) in the last month of life and preferred place of death (PPD), demographic and medical data were collected. Among 102 respondents, 65 patients with age above 65 years were included in this analysis. The median age was 77 years, and 41 participants were male. The most preferred place of care and death was palliative care unit (PCU, 35.4% and 44.6%), followed by hospital (33.8% and 36.9%). Home was the PPC and PPD among 24.6% and 13.8% respondents, while old age home (OAH) was the PPC and PPD of two patients and one patient respectively. Compared with patients who chose home as PPC and PPD, patients who preferred PCU were significantly younger (PPC median age 81. vs. 74 years, p=0.002, PPD 80 vs. 74 years, p=0.026 using Mann-Whiteney U test). Patients preferred PCU death were also younger than patients who preferred hospital death. (74 vs. 79.5 years, p=0.028). Patients who chose home as PPC had higher Charlson Comorbidity index than those who preferred PCU or hospital. (10.5 vs. 10.0, p=0.024; 10.5 vs. 9.0, p=0.024). Patients who preferred home death had poorer Palliative Performance Scale (60 vs. 75, p=0.020) and poorer appetite (Edmonton Symptom Assessment System 5/10 vs. 4/10, p=0.029) than patients choosing hospital. PCU was the most preferred place of care and death. Residential home was not a major preference and that for OAH was uncommon. Palliative care service at the last month of life and the dying phase for the elderly cancer patients should be tailored according to the patients' preferences.

Mechanical Evaluation of Woven Glass-Fiber Reinforced Composites for Rigid Scoliosis Brace

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Abstract

Adolescent Idiopathic Scoliosis (AIS) is a prevalent type of chronic illness that a patient's spine gradually develops a side-to-side curvature in late childhood or adolescence. The growth of such abnormal spine curvature may spurt as puberty progresses. To prevent progression of spinal deformities, rigid and weighted plastic braces have been designed to encircle patient's entire trunk but these braces often lead to very low compliance of the patients. Given these issues, the current research proposes the use of woven glass-fiber reinforced plastic (GFRP) composites to replace the existing rigid plastic materials. When fiberglass is weaved and embedded by a thermosetting resin, the overall composite material can have a much higher strength-to-weight ratio and it is very suitable for making lightweight rigid scoliosis braces. Therefore, the aim of the present research is to produce a woven E-glass fiber-reinforced epoxy composite material, which possesses the tensile stiffness and bending rigidity comparable to the plastic material for making conventional rigid brace. Based on a designated volume fraction of fiber, the thickness of the proposed composite material is optimized and hence a rigid GFRP composite brace with reduced weight can be achieved.

Effects of Slippers on Sit-to-Stand Transition of Older Women

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Abstract

The ability to stand up from a chair is an important functional test to assess the lower extremity functions and balance performance of older people. To achieve postural stability, there is the postural transition and coordination of muscle activity involved in that performance is associated with age-related changes in muscular strength in the leg extensors and changes in movement strategies. This study therefore aims to investigate the effects of slippers on the performance of the sit-to-stand transition of older women by using an in-shoe pressure measuring system so that the profile of the gait line pattern in terms of the centre of pressure (COP) excursion, path length and velocity in response to barefoot conditions and when wearing slippers can be collected and compared. Ten healthy females between the ages of 60 and 67 years old (mean: 62.85; SD: 2.81) are recruited for this study. The results indicate that there is no significant difference in the postural stability in the COP parameters between being barefoot and wearing slippers during the sit-to-stand transition. However, it is observed that the wearing of slippers may induce greater medial-lateral COP displacement and higher mean sway velocity. The findings obtained here can provide a better understanding of the importance of developing and investigating indoor slippers in relation to improved postural stability and foot protection in older adults, especially those with balance deficit.

Chemical Issues in Pharmaceutical Supply Chain: A Case of Tamiflu

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Abstract
Primary manufacturing is one of the key components in a standard pharmaceutical supply chain. The primary manufacturing site is responsible for the synthesis of the active ingredient of a drug. In the manufacture or design of new synthetic routes of a drug, the logistics cost, availability of starting materials, number of steps and overall yield are critical factors to be taken into account. In view of the importance of oseltamivir phosphate (Tamiflu) in treatment of influenza, related issues and development in pharmaceutical industry should be addressed and updated. In this paper, we will (1) highlight the concepts of supply chain management (SCM) in pharmaceutical industry; (2) describe the recent advance in the synthetic chemistry of Tamiflu, focusing on the new approaches based on inexpensive starting materials. This paper should be of interest to health care study and is expected to provide insights for the drug and supply chain management industry.

In-school Screening for Adolescent Idiopathic Scoliosis: Results of Adam's Forward Bending Test and Shoulder Obliquity in Adolescent Girls in Hong Kong

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Abstract
In-school screening for adolescent idiopathic scoliosis (AIS) is discussed. The aim of the present study is to describe in-school screening results of Adam's forward bending test and evaluate the shoulder obliquity in adolescent girls in Hong Kong. Between 2012 and 2015, 794 schoolgirls aged 10-13 underwent an in-school scoliosis screening. Students with a scoliometer measurement of ≥3° of the angle of trunk rotation (ATR) during the Adam's forward bending test are referred for a scolioscan, which uses 3D ultrasound. The shoulder balance is measured by using clinical photos of the clavicular angle (CA). The prevalence and percentage of shoulder obliquity in the normal and possible AIS groups are also determined. A positive result in the Adam's forward bending test (ATR ≥3°) is found in 19.4% of the schoolgirls (154 out of 794). Sixty of the girls with ATR ≥3° were invited for a scolioscan and forty-three have positive results with a spinal curve >10° (positive predictive value, 71.7%). 443 students underwent shoulder balance measurement. Shoulder obliquity with CA≥1° or CA≤-1° is found in 25% of the girls. A significantly different occurrence of shoulder obliquity is also found between the normal and possible AIS groups with a positive result in the Adam's forward bending test (ATR ≥3°) (72 out of 364, 19.8% in normal group and 44 out of 79, 55.7% in possible AIS groups, respectively). The results in the Adam's forward bending test and prevalence of shoulder obliquity demonstrate that there is the need for greater awareness of adolescent spinal and postural care in the community.

Behavioral Training of Paraspinal Muscles in Sitting Position with Biofeedback for Adolescent Patients with Mild Idiopathic Scoliosis

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Abstract
Studies that have applied surface electromyography (sEMG) assessments indicate that idiopathic scoliosis patients have significant differences in activity among pairs of muscles in the paraspinal regions. The asymmetrical paraspinal muscle activity is concluded to be a contributing factor for the progression of idiopathic scoliosis. Conservative treatment for mild cases (Cobb angle 10-20^{o}) has been passive in nature, and only periodic checks are provided by doctors. Therefore, in response, an investigation on patients with adolescent idiopathic scoliosis (AIS) on their paraspinal muscle activity and muscle training is carried out to explore the possibility of behavioral training for patients with mild AIS. This study has two objectives: (1) to observe the paraspinal muscle activity of patients with mild AIS during sitting, and (2) to train the paraspinal muscles to achieve relatively more balance as well as a balanced posture. Twelve patients with AIS are recruited. All 12 patients have undergone observation of their paraspinal muscle activity with the application of EMG, and 20 sessions of behavioral training in the sitting posture. The EMG data obtained prior to the training indicate that during the habitual sitting posture, the RMS sEMG ratio deviates from the tested value of 1 and follows a trend of significant differences at the erector spinae at lumbar region for some subjects. In addition, after 20 sessions of behavioral training, the subjects provide relatively more balanced EMG data compared to those before the training. None have a significant deviation from the tested value of 1. It is believed that through the behavioral training, AIS patients can achieve a more balanced sitting posture, and thus, control the progression of their spinal deformity.